

Superconductive Electronics Program Review

22-28 January 2006

Agenda

Bahia Resort Hotel

998 West Mission Bay Drive

San Diego, CA 92109

858.488.0551

Part 1: 22-25 January 2006 ♦ San Diego, CA

Sunday, 22 January 2006

2:00 pm	6:00 pm	Pre-meeting MgB2 JJ Fabrication Issues/Status -- only participants need attend
6:30 pm	7:30 pm	<i>Dinner on Your Own</i>
7:30 pm	8:15 pm	George Kerber/Alan Kleinsasser Progress on Establishing a Manufacturable 20 KA/cm2 Process in Collaboration with HYPRES
8:15 pm	9:00 pm	Richard LeDuc JPL Nb Foundry for Astrophysics Applications
9:00 pm	9:45 pm	Sergey Tolpygo/Oleg Mukahnov Issues and Lessons Learned in Converting Jc on Functioning Circuits Line and Defining Chip/Testing Efficient Process Monitoring -- What Parameters are Enough?

Monday, 23 January 2006

7:30 am	8:30 am	<i>Breakfast, included in fee</i>
8:30 am	9:05 am	Xiaoxing Xi MgB2 Josephson Junction Fabrication Progress Using Reactive Gasses and Heat
9:05 am	9:40 am	Jagadeesh Moodera Progress on MgB2 JJ via MBE on Buffered Si
9:40 am	10:15 am	Nate Newman Progress on MBE MgB2 JJ
10:15 am	10:35 am	<i>Break, included</i>

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10:35 am	11:10 am	Brian Moeckly Microwave Properties of MgB ₂ Thin Films Grown by Reactive Evaporation
11:10 am	11:45 am	Shane Cybart Planar Josephson Junctions and SQIF Arrays from MgB ₂ and YBCO via Ion Damage and Electron Beam Lithography
11:45 am	12:30 pm	John Rowell Summary Sun Workshop: Lessons Learned, Residual Science/ Material Issues/ Prospects for Manufacturable MgB ₂ JJ Process
12:30 pm	1:30 pm	<i>Lunch as Group, included</i>
1:30 pm	2:15 pm	Nate Newman What have We Learned re Unusual Tunnel Barriers, Both TaN near the Metal Insulator Transition and Semiconductors
2:15 pm	3:00 pm	Jim Freericks The Calculation of Josephson Junctions IV Curves including the Metal Insulator Transition in Barriers and Non-Equilibrium Effects
3:00 pm	3:15 pm	<i>Break, included</i>
3:15 pm	4:00 pm	Michael Flatté Microscopic Simulation of Microwave Materials Properties
4:00 pm	4:45 pm	Jim Booth Can HTS Power Limiters be Cascaded to Avoid IMD and Can They Produce Low Dissipation RF Switches?
4:45 pm	5:30 pm	Dan Oates Modeling Inter Modulation Distortion (IMD) and Filter Response in Nb, MgB ₂ , and YBCO
6:00 pm	7:30 pm	<i>Dinner as Group, not included in fee</i>
7:30 pm	8:30 pm	Raafat Mansour Analog Devices in Nb Digital Circuits Design and their Fabrication: MEMS options Issues Involved in Choice of Cu, YBCO and Nb for Analog Parts such as Frequency Channelizers in SCE Receiver
8:30 pm	9:15 pm	Bob Buhrman Physi-Absorbed O ₂ and N ₂ and its Consequences in Nb JJ

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Tuesday, 24 January 2006

7:30 am	8:30 am	Breakfast, included in fee
8:30 am	9:15 am	Anna Kidyarova-Shevchenko Circuit Design CAD, Demonstrated Parts in Circuits/ System Tool Box
9:15 am	10:00 am	Mukhanov/Borzonets/Track/Webber HTS Leads and Cryopackaging Status at HYPRES, LM Cooler Effort
10:00 am	10:45 am	Ray Radebaugh Consequences and Nature of Real Gas Effect Distinctions between He3 & He4; Overview of Regenerator Test Lab
10:45 am	11:00 am	Break, included
11:00 am	11:45 am	Sam Benz/Paul Dresslehaus Status of High Speed Data Dumping Box and Vertically Stacked Nb JJ Fabrication
11:45 am	12:30 pm	Vasili Semenov Flux Trapping: Status/ Issues/ Relationship to Automated Design and Utility of Additional Wiring Layers; Philosophy and Reality of Parametric Cell
12:30 pm	1:30 pm	Lunch as Group, included
1:30 pm	2:15 pm	Victor Kornev Application of SQIF Arrays to Digital Output Circuits as Wide Band Amplifiers
2:15 pm	3:00 pm	Oleg Snigirev Design of a 7.5 GHz Signal, SCE Receiver Input Circuit
3:00 pm	3:15 pm	Break, included
3:15 pm	4:00 pm	Deep Gupta Status of Serial Biasing Development
4:00 pm	4:45 pm	Oleg Mukhanov Band Pass adc: Status and Technical Issues
4:45 pm	5:30 pm	Quentin Herr/Don Miller Issues and Approach for Nb JJ and InP HBT Hybrids

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| 6:00 pm | 7:00 pm | <i>Dinner as Group, not included in fee</i> |
| 7:00 pm | 7:45 pm | Arnold Silver
One Roadmap to Develop Large, High Speed Processor Circuits
from Today's SOA |
| 7:45 pm | 8:30 pm | Deborah Van Vechten
News from ONR, AGED: Future Research Priorities |

Wednesday, 25 January 2006

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| 7:30 am | 8:30 am | <i>Breakfast, included in fee</i> |
| 8:30 am | 9:15 am | Anna Leese
Pattern Recognition Applied to Task of Signal Sorting |
| 9:15 am | 10:00 am | Greg Nellis
Gas-Mixture-Cooled Current Leads and Improved Accuracy Pulse
Tube Modeling |
| 10:00 am | 10:45 am | Bob Buhrman
Spin Torque MRAM |
| 10:45 am | 11:00 am | <i>Break, included</i> |
| 11:00 am | 11:45 am | Deep Gupta
Design of an RSFQ Digital Channelizer: Status, Lessons Learned,
Uses Possible |
| 11:45 am | 12:30 pm | Armen Gulian
Superconductivity in Laser Processed SrRuO Family? |
| 12:30 pm | 1:30 pm | <i>Lunch as Group, included</i> |
| 1:30 pm | | Adjourn |

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Wine Valley Inn & Cottages

1564 Copenhagen Drive

Solvang, CA 93463

805.688.2111; 800.824.6444

Part 2: 27-28 January 2006 ♦ Solvang, CA

Friday, 27 January 2006

6:00 pm	7:00 pm	<i>Dinner as Group at Cabernet Bistro, not included in fee</i>
7:00 pm	7:45 pm	Nai-Phuan Ong New Thermoelectric Materials and Electronic Cooling Applications
7:45 pm	8:30 pm	Nils Schopohl Fermion Zero Modes of a D-Wave Superconductor and the Shadow on the Wall Cast by an Abrikosov Vortex
8:30 pm	9:15 pm	Clare Yu Noise and Decoherence in Josephson Junction Qubits
9:15 pm	9:30 pm	Doug Scalapino Comparison of IMD in Various Superconductors

Saturday, 28 January 2006

7:00 am	7:30 am	<i>Continental Breakfast, included in hotel room cost</i>
7:30 am	8:00 am	Deborah Van Vechten Best Guess at Funding Future Priorities at ONR
8:00 am	8:45 am	Zhi-Xun Shen APRES Results
8:45 am	9:30 am	Seamus Davis STM Results
9:30 am	9:45 am	<i>Break, included in conference room cost</i>
9:45 am	10:30 am	Tom Devereaux Investigation of Electron-Phonon Interactions in High Temperature Superconductors
10:30 am	11:15 am	Peter Hirschfield Fourier Transform STM and Realistic Disorder Models in Cuprates
11:30 am		Adjourn